

[CLAIMS]**[Claim 1]**

A method of producing a stent for guiding the location/direction for the insertion of an implant,
5 comprising the steps of:

forming a plaster cast modeling of a mouth state using a plastic replica;

manufacturing a plastic cast model having an occlusal surface of the location for the insertion of the implant
10 using the plaster cast;

fastening a plastic plate having on corners thereof a plurality of metal balls to an upper end of the plastic cast model; and

obtaining a computed tomographic (CT) image of the
15 mouth after placing the plastic cast model, on which the plastic plate is fastened, in the mouth, and forming a hole on a predetermined position in the stent to correspond to both a location and a direction for the insertion of the implant determined by a dentist based on the CT image.

20 **[Claim 2]**

The method of producing the stent for guiding the location/direction for the insertion of the implant according to claim 1, wherein the determination of the location and direction for the insertion of the implant
25 depends on a spatial positional relationship between the metal balls displayed in the CT image.

【Claim 3】

The method of producing the stent for guiding the location/direction for the insertion of the implant according to claim 1, wherein the metal balls comprise at
5 least three metal balls.

【Claim 4】

The method of producing the stent for guiding the location/direction for the insertion of the implant according to claim 1, further comprising a step of:

10 forming an implant guide hole on the plastic cast model, on which the plastic plate is fastened, according to the predetermined location and direction.

【Claim 5】

The method of producing the stent for guiding the
15 location/direction for the insertion of the implant according to claim 2, wherein the determination of the location and direction for insertion of the implant comprises the steps of:

determining positions of the metal balls from the
20 obtained CT image;

defining a plane provided by the metal balls using the positions of the metal balls respectively; and

calculating a relationship between the defined plane and an imaginary implant.

【Claim 6】

A stent for guiding the location/direction for the insertion of an implant produced by the method according to any one of claims 1 through 5.

5 **【Claim 7】**

A stent for guiding the location/direction for the insertion of an implant, comprising:

a plastic cast model 430 having an occlusal surface of a predetermined portion into which the implant is
10 inserted;

a plastic plate 410 having at least three metal balls (b1,b2,b3) and attached to the plastic cast model to be parallel with each other; and

an implant guide hole (H) formed on a predetermined
15 position (P) of the plastic cast model corresponding to a hole determined according to a predetermined algorithm.

【Claim 8】

The stent for guiding the location/direction for the insertion of the implant according to claim 7, wherein the
20 predetermined algorithm comprises the steps of:

determining positions of the metal balls from an obtained computed tomographic (CT) image;

defining a plane provided by the metal balls using the positions of the metal balls respectively; and

calculating a relationship between the defined plane and an imaginary implant.

【Claim 9】

5 A method of determining a position of a guide hole of a stent for guiding the location/direction for the insertion of an implant, the stent having a plastic cast model 430 having an occlusal surface of a predetermined portion into which the implant is inserted; and a plastic plate 410 having at least three metal balls (b1,b2,b3) and
10 attached to the plastic cast model to be parallel to each other, the method comprising the steps of:

obtaining a computed tomographic (CT) image of a mouth after placing the stent in the mouth;

15 determining positions of the metal balls from the obtained CT image;

defining a plane provided by the metal balls using the positions of the metal balls respectively; and

calculating a relationship between the defined plane and an imaginary implant.

20 【Claim 10】

The method of determining the position of the guide hole of the stent for guiding the location/direction for the insertion of the implant according to claim 9, wherein the determination of the positions of the metal balls
25 comprises the steps of:

giving a number to each of the metal balls;

defining a line, connecting metal ball number one to metal ball number two, as an X-axis, and defining another line, connecting metal ball number one to metal ball number three, as a Y-axis;

5

confirming whether an angle between the two lines is perpendicular, and determining the positions of the metal balls to be in error if the angle between the two lines is not perpendicular, and defining a Z-axis by finding a vector product of the X-axis and the Y-axis if the angle between the two lines is perpendicular; and measuring an insertion depth of the implant (I) based on the plane defined by the metal balls; and

10

finding an intersection point (P) between an extension line of the implant (I) and a plane (S) formed by the X-axis and the Y-axis.

15